

Good morning!

1. "Here"

2. Review

3. Test is open today until Thursday
morning 8:00 AM

What is a Metaphor?

Solve each equation below using the quadratic formula. Cross out the box that contains the solution set. When you finish, print the letters from the remaining boxes in the spaces at the bottom of the page.

1) $x^2 + 4x + 3 = 0$

2) $x^2 - 7x + 10 = 0$

3) $x^2 + 5x + 6 = 0$

4) $x^2 - 3x - 4 = 0$

5) $y^2 + 2y - 8 = 0$

6) $x^2 - 5x + 2 = 0$

7) $d^2 + 3d - 7 = 0$

8) $2x^2 - 5x + 2 = 0$

9) $2n^2 - 3n - 5 = 0$

10) $3x^2 + 5x + 1 = 0$

11) $3y^2 - 2y - 8 = 0$

ONE {5, 2}	ATH $\left\{\frac{-5 \pm \sqrt{13}}{6}\right\}$	TOK $\left\{-4, \frac{1}{2}\right\}$	ING $\left\{\frac{5}{2}, -1\right\}$	ICK $\left\{\frac{-3 \pm \sqrt{37}}{2}\right\}$
ASL {-2, -3}	EEP $\left\{\frac{3 \pm \sqrt{15}}{2}\right\}$	MET {2, -4}	BOW $\left\{2, -\frac{4}{3}\right\}$	COW $\left\{\frac{2 \pm \sqrt{30}}{6}\right\}$
BOY $\left\{2, \frac{1}{2}\right\}$	RIT {-1, -3}	SIN {6, 1}	GLE $\left\{\frac{5 \pm \sqrt{17}}{2}\right\}$	ING {4, -1}

Remaining Letters:

T O K E E P C O W S I N

Picking the "Best" Method to Solve Quadratic Equations

$x^2 + 5$

Method	Page	When You Can Use It	Advantages	Disadvantages
Factoring $ax^2 + bx + c = 0$		whenever the quadratic is factorable	<ul style="list-style-type: none"> good method to try first straightforward (if the quadratic is factorable) 	<ul style="list-style-type: none"> not all quadratics are factorable
Square Roots	x^2 or $(x+h)^2$	whenever the b term is 0x	<ul style="list-style-type: none"> quick <p>SADMEP</p>	<ul style="list-style-type: none"> cannot use when the b term is anything but 0x
Completing the Square		when a = 1 and b is even	<ul style="list-style-type: none"> will always work if a = 1 and b is even 	<ul style="list-style-type: none"> longer process multiple steps
Quadratic Formula		always works	<ul style="list-style-type: none"> always works 	<ul style="list-style-type: none"> other methods may be "easier" or quicker

Solve the following quadratic equation by the methods listed.

$$x^2 - 8x + 10 = -5$$

Factoring

$x^2 - 8x + 15 = 0$

$(x-5)(x-3) = 0$

$x-5=0 \quad x-3=0$
 $x=5 \quad x=3$

Triangular method:
 $\begin{array}{r} 15 \\ -3 \quad -5 \\ \hline x-3 \\ -5 \quad -10 \\ \hline x-3 \end{array}$

Completing the Square

$$x^2 - 8x + 15 = 0$$

$$x^2 - 8x + 16 = -15 + 16$$

$$\sqrt{(x-4)^2} = \sqrt{1}$$

$$x-4 = \pm 1$$

$$x-4 = 1 \quad x-4 = -1$$

$$x = 5 \quad x = 3$$

Quadratic Formula

$a=1 \quad b=-8 \quad c=15$

$$x = \frac{-(-8) \pm \sqrt{(-8)^2 - 4(1)(15)}}{2(1)}$$

$$x = \frac{8 \pm \sqrt{64 - 60}}{2}$$

$$x = \frac{8 \pm 2}{2}$$

$$x = \frac{8+2}{2} \quad x = \frac{8-2}{2}$$

$$x = \frac{10}{2} \quad x = \frac{6}{2}$$

$$x = 5 \quad x = 3$$



\$2,033.C

Solving Quadratic Equations – Matching Worksheet

Solve the following by any method. Then, match the equation to the answer(s) on the right.

___ 1) $x^2 - 16x + 63 = 0$

___ 2) $x^2 + 6x - 2 = 0$

___ 3) $5x^2 = 45$

___ 4) $x^2 - 2x - 14 = -4$

___ 5) $4x^2 + 20x - 20 = 4$

___ 6) $(x + 3)^2 + 2 = -10$

___ 7) $2x^2 - 3x = 0$

___ 8) $x^2 - 4x - 18 = -x$

___ 9) $x^2 + 14x - 30 = 8$

___ 10) $3x^2 - 2x = 8$

___ 11) $x^2 - 9 = 0$

___ 12) $5x^2 + 9 = 134$

___ 13) $x^2 - 8x + 3 = 0$

___ 14) $2x^2 + x - 10 = 0$

___ 15) $2(x - 3)^2 - 12 = 4$

___ 16) $2x^2 + x - 10 = 5$

___ 17) $x^2 - 8x - 33 = 0$

___ 18) $x^2 - 4x - 12 = 0$

___ 19) $x^2 - 10x - 8 = 0$

___ 20) $2(x - 3)^2 = 8$

one answer will be used twice

a) $x = 3, x = -3$

b) $x = -3 \pm \sqrt{11}$

c) $x = 2, x = -\frac{5}{2}$

d) no real solution

e) $x = 1 \pm \sqrt{11}$

f) $x = -2, x = 6$

g) $x = \pm 5$

h) $x = 7, x = 9$

i) $x = 0, x = \frac{3}{2}$

j) $x = 3 \pm 2\sqrt{2}$

k) $x = -3, x = 6$

l) $x = 4 \pm \sqrt{13}$

m) $x = 5 \pm \sqrt{33}$

n) $x = -3, x = 11$

o) $x = 1, x = 5$

p) $x = 2, x = -\frac{4}{3}$

q) $x = -7 \pm \sqrt{87}$

r) $x = -3, x = \frac{5}{2}$

s) $x = -6, x = 1$

$$x^2 - 8x + 3 = 0 \quad \text{COMPLETE the } \square$$

$-3 \quad -3$

$$x^2 - 8x + \square = -3 + \square$$

$$\sqrt{(x-4)^2} = \sqrt{13}$$

$$x - 4 = \pm \sqrt{13}$$

$+4 \quad +4$

$$\boxed{x = 4 \pm \sqrt{13}}$$

$$5x^2 + 9 = 134$$

-9 -9

√SRM

$$\frac{5x^2}{5} = \frac{125}{5}$$

$$\sqrt{x^2} = \sqrt{25}$$

$$x = \pm 5$$

$$x^2 - 9 = 0 \quad \text{SRM}$$

$$\frac{+9 \quad +9}{\sqrt{x^2} = \sqrt{9}}$$

$$\boxed{x = \pm 3}$$

$$3x^2 - 2x - 8 = 0 \quad \text{Quad. Form}$$

$$3x^2 - 2x - 8 = 0$$

$$a = 3 \quad b = -2 \quad c = -8$$

$$x = \frac{-(-2) \pm \sqrt{(-2)^2 - 4(3)(-8)}}{2(3)}$$

$$x = \frac{2 \pm 10}{6}$$

$$x = \frac{2+10}{6} = 2$$

$$x = \frac{2-10}{6} = -\frac{4}{3}$$

$$\sqrt{4+96}$$

$$\sqrt{100}$$

$$10$$

$$x^2 + 14x - 30 = 8$$

$$\frac{x^2 + 14x - 30 = 8}{+30 \quad +30}$$

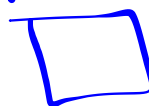
$$x^2 + 14x + 49 = 38 + 49$$

$$\sqrt{(x+7)^2} = \sqrt{87}$$

$$x+7 = \pm\sqrt{87}$$

$$\boxed{x = -7 \pm \sqrt{87}}$$

Complete
the



$$\begin{array}{r} 87 \\ 3 \overline{) 87} \\ \underline{3 } \\ 29 \end{array}$$

$$x^2 - 4x - 18 = -x$$

$+x$
 $+x$

$$x^2 - 3x - 18 = 0$$

$$(x+3)(x-6) = 0$$

$$x = 6, -3$$

Factor

-18		$\frac{18}{6 3}$
-6	3	
-3		$x+3$
x	x^2	$3x$
-6	$-6x$	-18

$$2x^2 - 3x = 0$$

Factor x

$$x(2x-3) = 0$$

$$\boxed{\begin{array}{l} x=0 \\ x=3/2 \end{array}}$$



$$2x^2 - 3x + 0 = 0$$

$$a=2 \quad b=-3 \quad c=0$$

$$x = \frac{3-3}{4} = 0$$

$$x = \frac{-(-3) \pm \sqrt{(-3)^2 - 4(2)(0)}}{2(2)}$$

$$\frac{3 \pm \sqrt{9}}{4} = \frac{3 \pm 3}{4}$$

$$x = \frac{3+3}{4} = \frac{6}{4} = \frac{3}{2}$$

$$\boxed{(x+3)^2} + 2 = -10 \quad \text{SRM}$$
$$\frac{-2 \quad -2}{\sqrt{(x+3)^2} = \sqrt{-12}}$$

no real
solution

$$4x^2 + 20x - 20 = 4$$

$$\underline{4x^2 + 20x - 24 = 0}$$

$$4(x^2 + 5x - 6) = 0$$

$$4(x+6)(x-1) = 0$$

$$4 \neq 0 \quad x+6=0 \quad x-1=0$$

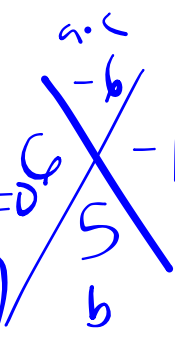
$$\boxed{x = -6} \quad \boxed{x = 1}$$

Method: factoring

3 terms

① AC

② Trin.



	$x + 6$	
x	x^2	$6x$
-1	$-x$	-6

① Method: Quadratic formula

$$x^2 - 16x + 63 = 0$$

$$x = \frac{-(-16) \pm \sqrt{(-16)^2 - 4(1)(63)}}{2(1)}$$

$$x = \frac{16 \pm \sqrt{4}}{2} = \frac{16 \pm 2}{2}$$

$$\frac{16+2}{2} = 9$$

$$\frac{16-2}{2} = 7$$

② Method: Completing the Square

$$x^2 + 6x - 2 = 0$$

$$+2 + 2$$

$$x^2 + 6x + 9 = 2 + 9$$

$$\sqrt{(x+3)^2} = \sqrt{11}$$

$$x+3 = \pm \sqrt{11}$$

$$x = -3 \pm \sqrt{11}$$

$$x^2 + 6x + 9$$

$$(x+3)(x+3)$$

$$(x+3)^2$$



③ Method: Square Root Method

$$\frac{5x^2}{5} = \frac{45}{5}$$

$$\sqrt{x^2} = \sqrt{9}$$

$$x = 3, -3$$

④ Method: ~~factoring~~ Quad. Form

$$x^2 - 2x - 14 = -4$$

$$x^2 - 2x - 10 = 0$$

$$a=1 \quad b=-2 \quad c=-10$$

$$x = \frac{-(-2) \pm \sqrt{(-2)^2 - 4(1)(-10)}}{2(1)}$$

$$\frac{2 \pm \sqrt{44}}{2}$$

$$x = \frac{2 \pm 2\sqrt{11}}{2}$$

$$x = 1 \pm \sqrt{11}$$

$$\begin{array}{r} -10 \\ 2 \overline{) 10} \\ \underline{20} \\ 10 \\ \underline{20} \\ 0 \end{array}$$

$$2 \sqrt{44}$$

$$\begin{array}{r} 22 \\ 2 \overline{) 44} \\ \underline{44} \\ 0 \end{array}$$

